

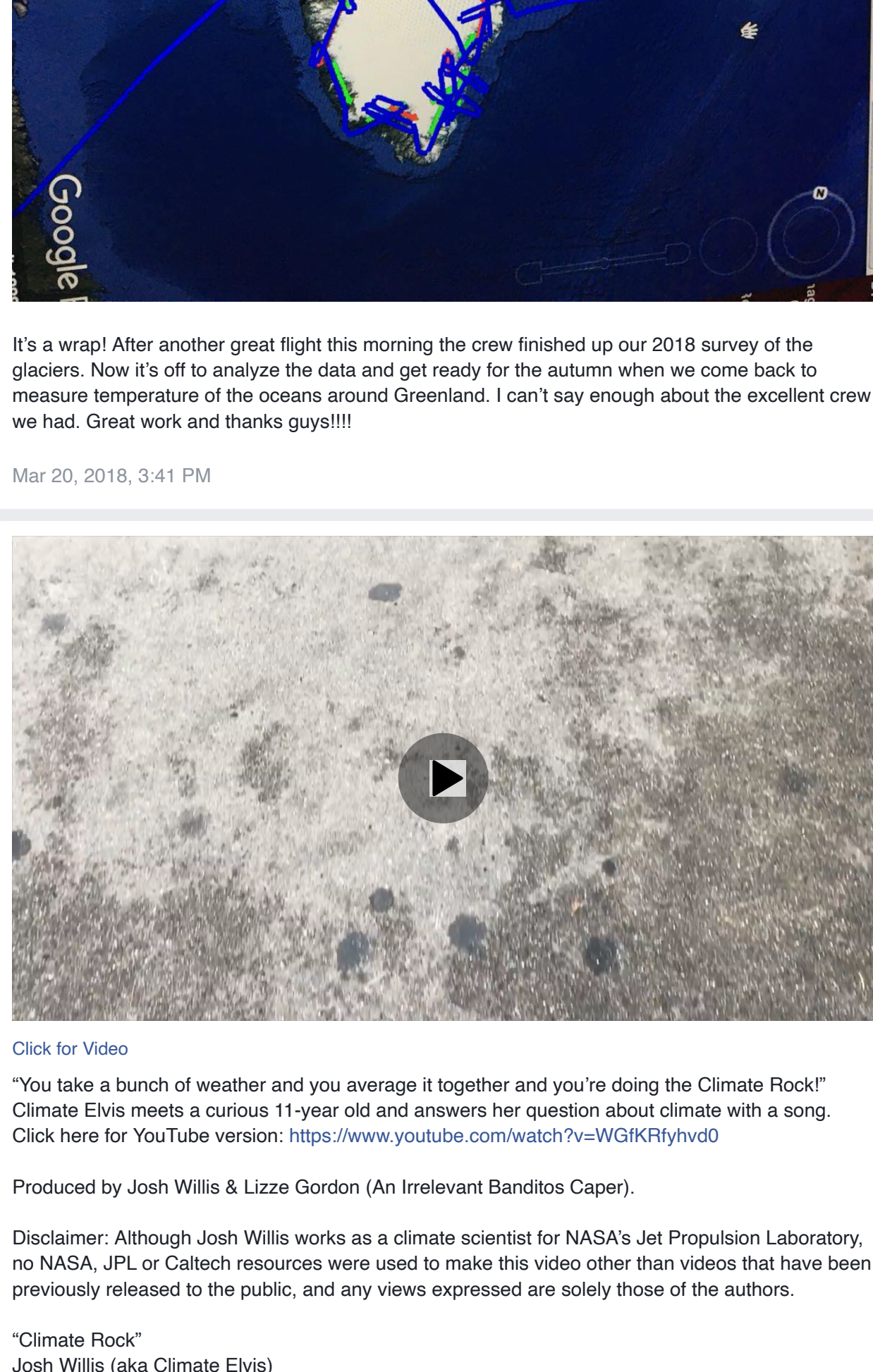
Oceans Melting Greenland (OMG) GLISTIN-A 2018 Campaign Field Report

Global sea level rise will be one of the major environmental challenges of the 21st Century. Oceans Melting Greenland (OMG) will pave the way for improved estimates of sea level rise by addressing the question: To what extent are the oceans melting Greenland's ice from below? Over a five-year campaign, OMG will observe changing water temperatures on the continental shelf surrounding Greenland, and how marine glaciers react to the presence of warm, salty Atlantic Water. The complicated geometry of the sea floor steers currents on the shelf and often determines whether Atlantic Water can reach into the long narrow fjords and interact with the coastal glaciers. Because knowledge of these pathways is a critical component of modeling the interaction between the oceans and ice sheet, OMG will facilitate improved measurements of the shape and depth of the sea floor in key regions as well.

The surveys of Greenland's ice sheet were conducted with the GLacier and Ice Surface Topography Interferometer (GLISTIN-A), which aims to produce high spatial resolution (25 m), high-precision (< 50 cm) height maps of Greenland's coastal glaciers, at 10 to 12-km wide swaths using Ka-Band (8.4 mm wavelength) single-pass interferometry. By measuring ice surface elevation changes over several years, volume changes of marine terminating glaciers can be inferred. The GLISTIN-A radar is mounted in a pod under a Gulfstream III airplane. Operating at Ka-Band enhances interferometric accuracy, reduces penetration into the top layers of snow and firn and limits signal attenuation in the atmosphere.

The swaths generally cover the lower parts of the glaciers. The near edges of most swaths are set as close as possible to, and just downstream from, glacier fronts. The remainder of the swaths extend up-glacier from the fronts. Most swaths are flown across glacier flow, capturing as many glacier fronts as possible in each single swath. In the cases of a few large glaciers, swaths are flown along glacier flow, again extending from the front upstream towards the interior of the ice sheet.

This campaign was conducted by the GLISTIN-A Instrument Team aboard the Grumman Gulfstream III (G-III) aircraft. The data was collected during a survey of Greenland's ice sheet from March 1st to March 21st using the GLISTIN-A instrument. The entries of the field report that follow are in reverse chronological order.



It's a wrap! After another great flight this morning the crew finished up our 2018 survey of the glaciers. Now it's off to analyze the data and get ready for the autumn when we come back to measure temperature of the oceans around Greenland. I can't say enough about the excellent crew we had. Great work and thanks guys!!!!

Mar 20, 2018, 3:41 PM



[Click for Video](#)

"You take a bunch of weather and you average it together and you're doing the Climate Rock!" Climate Elvis meets a curious 11-year old and answers her question about climate with a song. Click here for YouTube version: <https://www.youtube.com/watch?v=WGfKRfYhvd0>

Produced by Josh Willis & Lizze Gordon (An Irrelevant Banditos Caper).

Disclaimer: Although Josh Willis works as a climate scientist for NASA's Jet Propulsion Laboratory, no NASA, JPL or Caltech resources were used to make this video other than videos that have been previously released to the public, and any views expressed are solely those of the authors.

"Climate Rock"

Josh Willis (aka Climate Elvis)

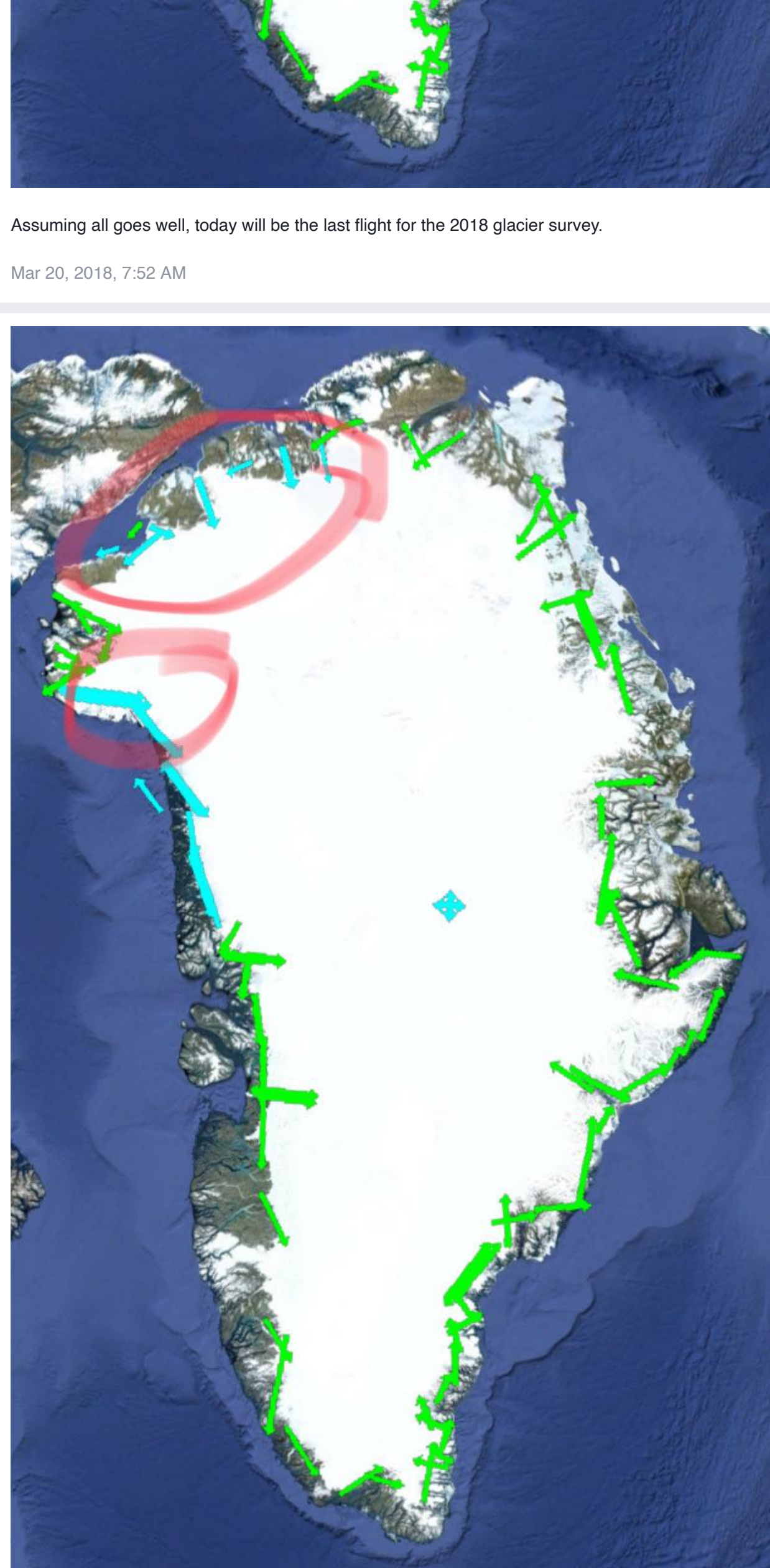
Music by Kevin Stafford

Lyrics by Josh Willis

Produced and Mixed by Mike Wojtkiewicz

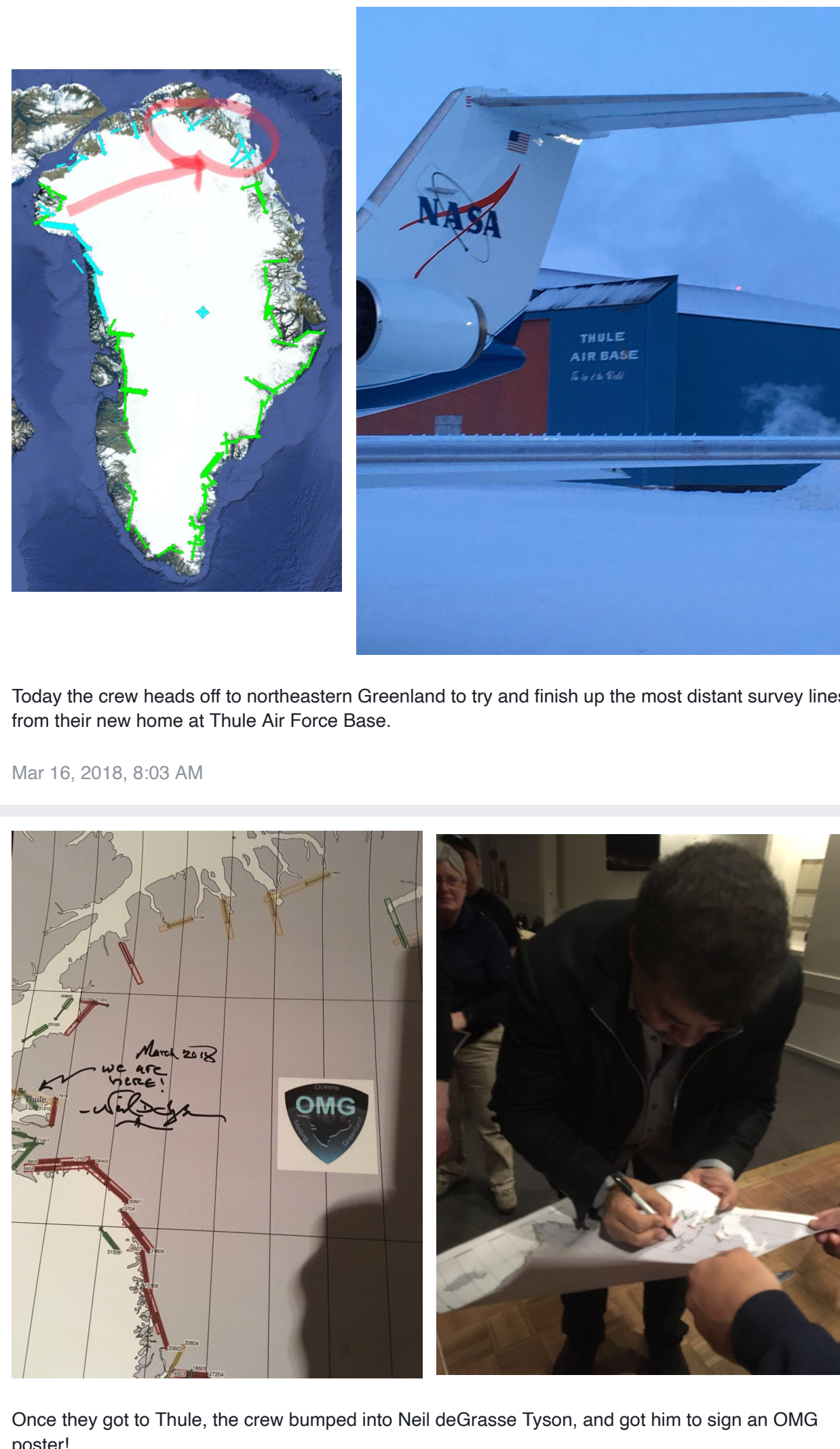
Backup Vocals by Denah Angel, Shayla Tharp, Jhanna Nocon, and Lizze Gordon

Mar 20, 2018, 7:54 AM



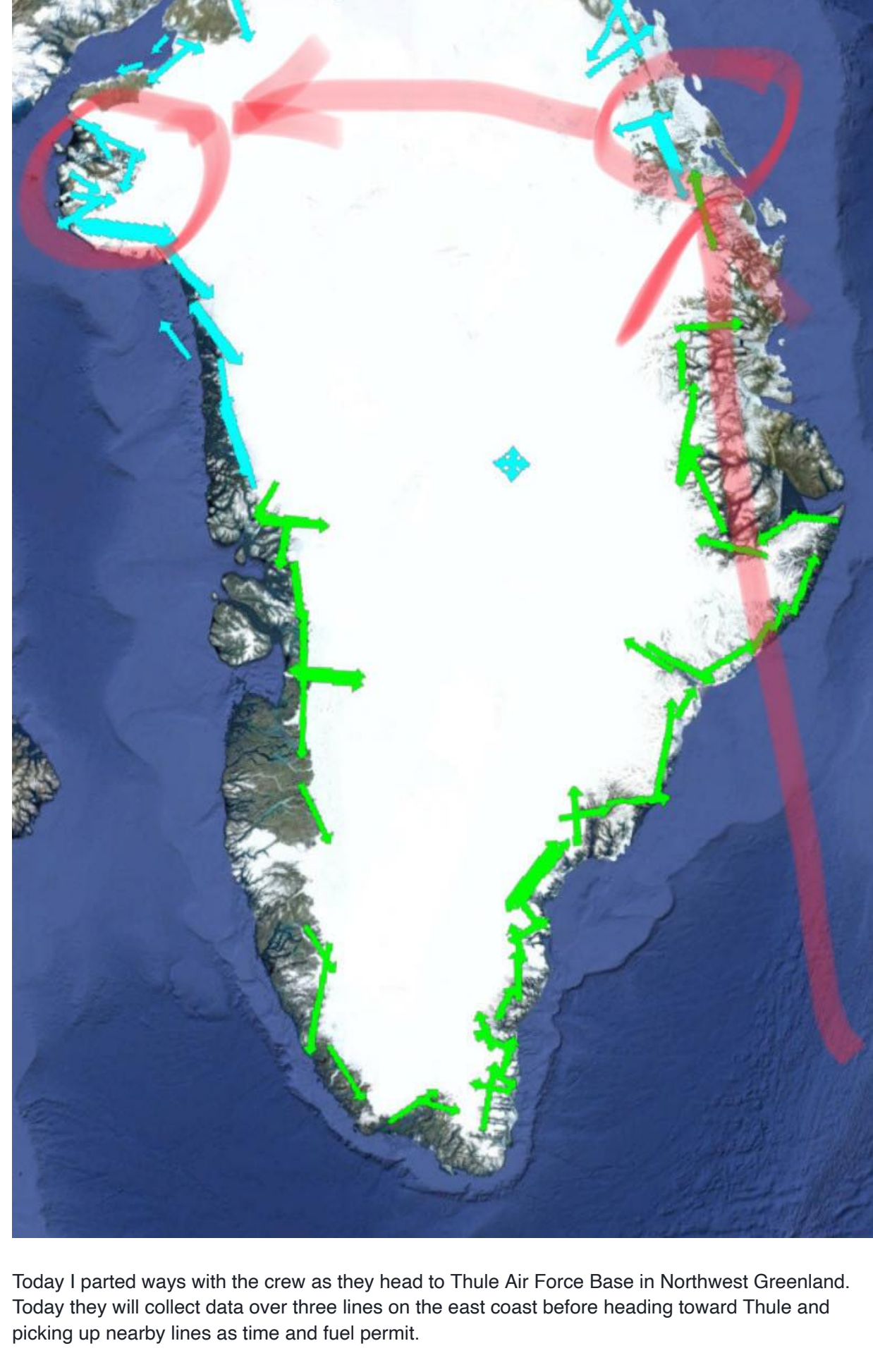
Assuming all goes well, today will be the last flight for the 2018 glacier survey.

Mar 20, 2018, 7:52 AM



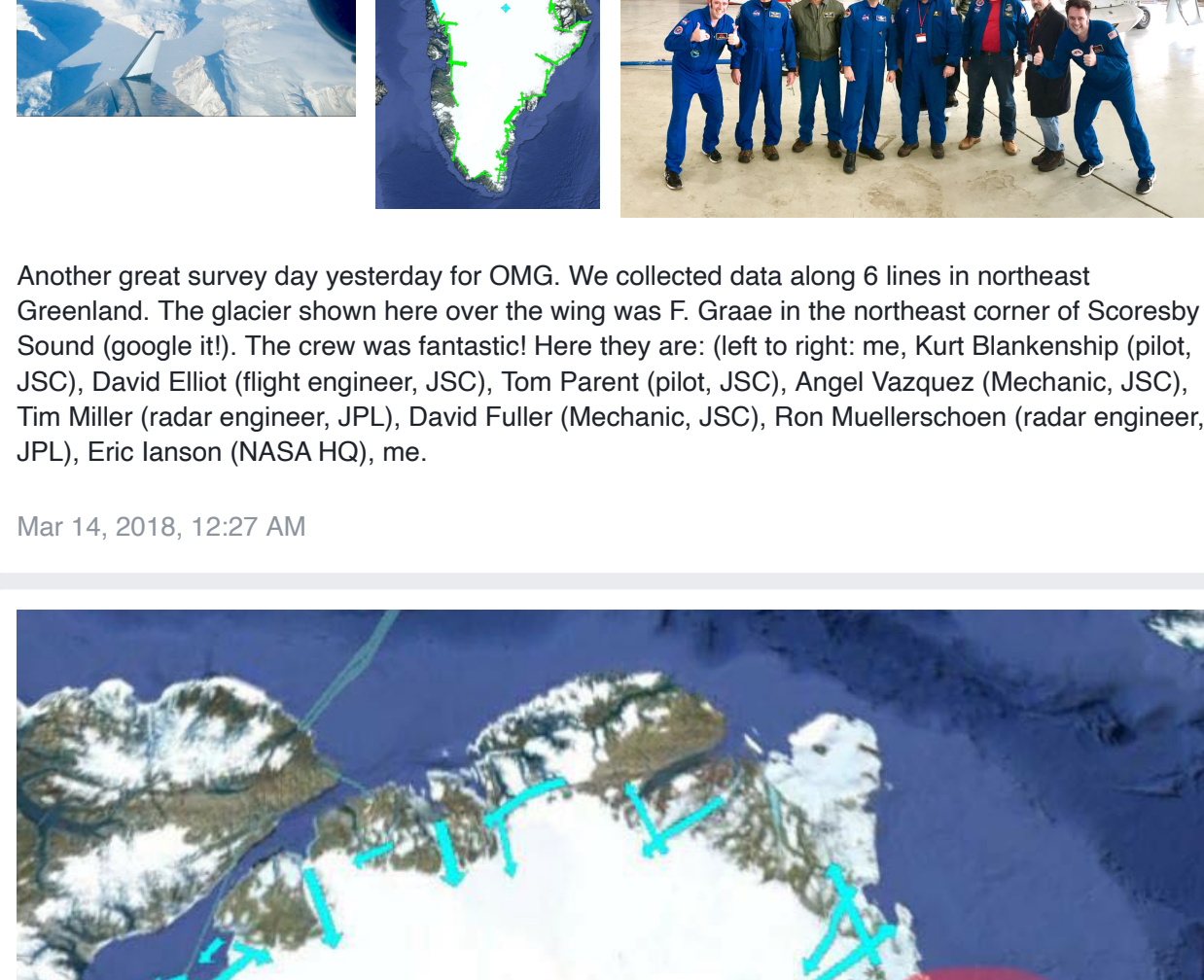
Getting close! After two down days this weekend, the crew is headed back out to collect data in the north and west today. After this, one more good flight day should finish up the 2018 OMG ice survey.

Mar 19, 2018, 7:08 AM



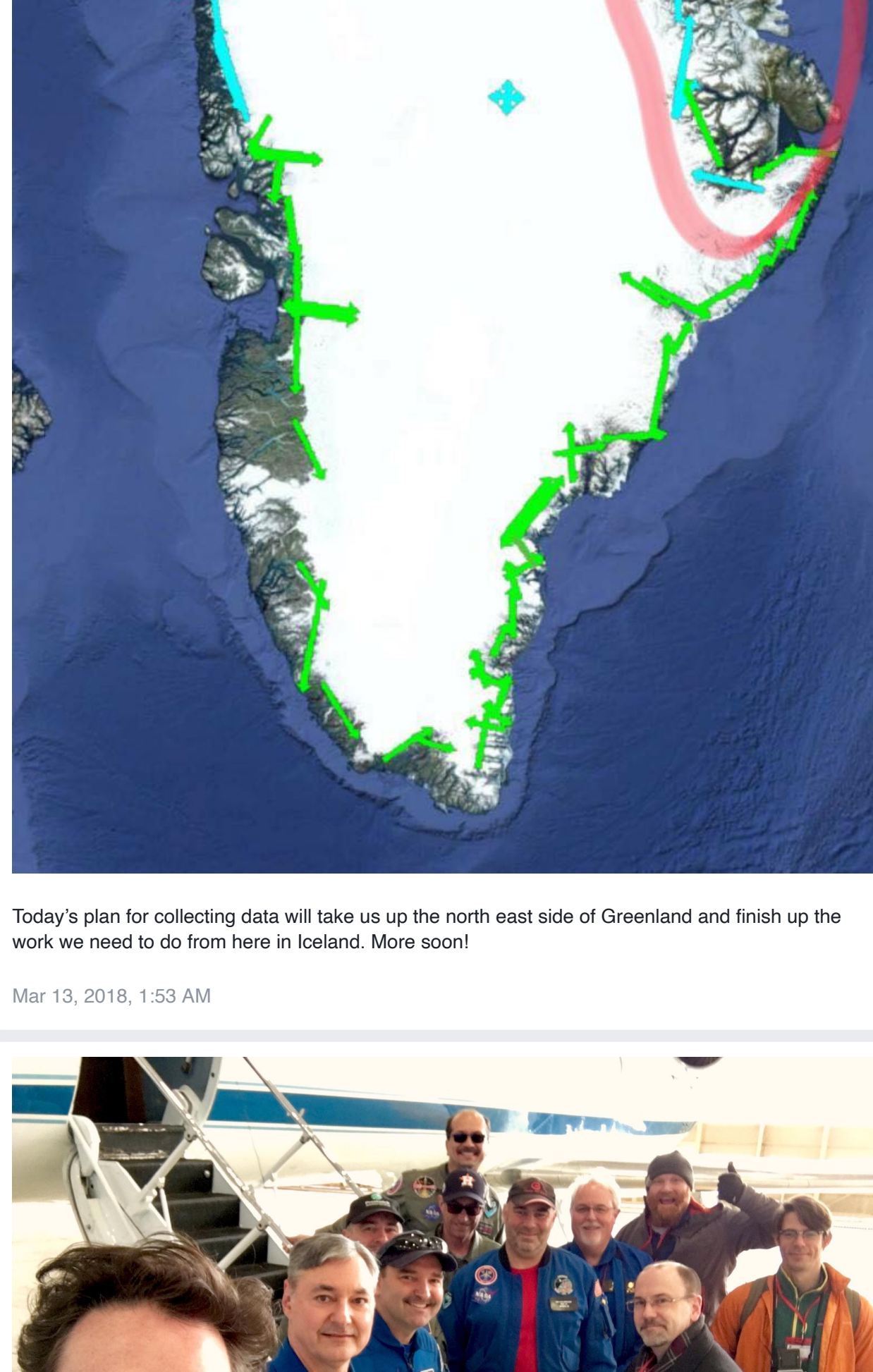
Today the crew heads off to northeastern Greenland to try and finish up the most distant survey lines from their new home at Thule Air Force Base.

Mar 16, 2018, 8:03 AM



Once they got to Thule, the crew bumped into Neil deGrasse Tyson, and got him to sign an OMG poster!

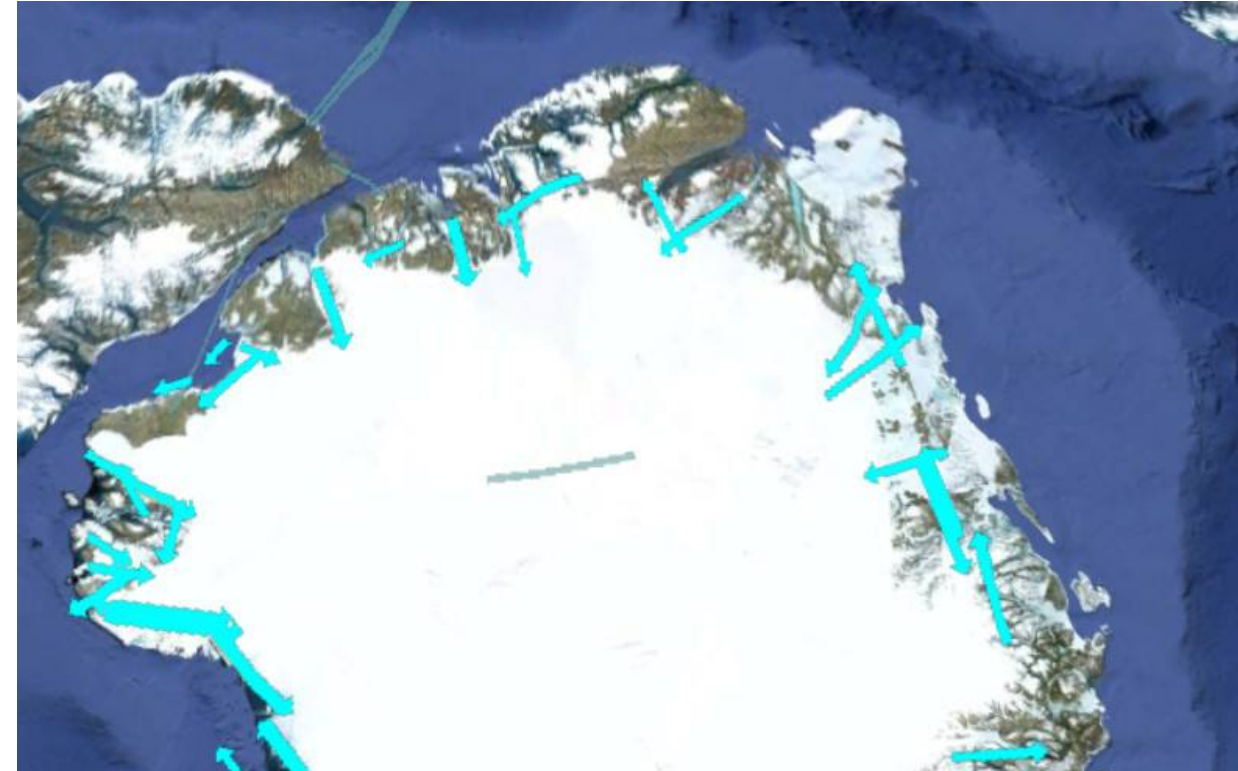
Mar 15, 2018, 6:42 PM



Today I parted ways with the crew as they head to Thule Air Force Base in Northwest Greenland. Today they will collect data over three lines on the east coast before heading toward Thule and picking up nearby lines as time and fuel permit.

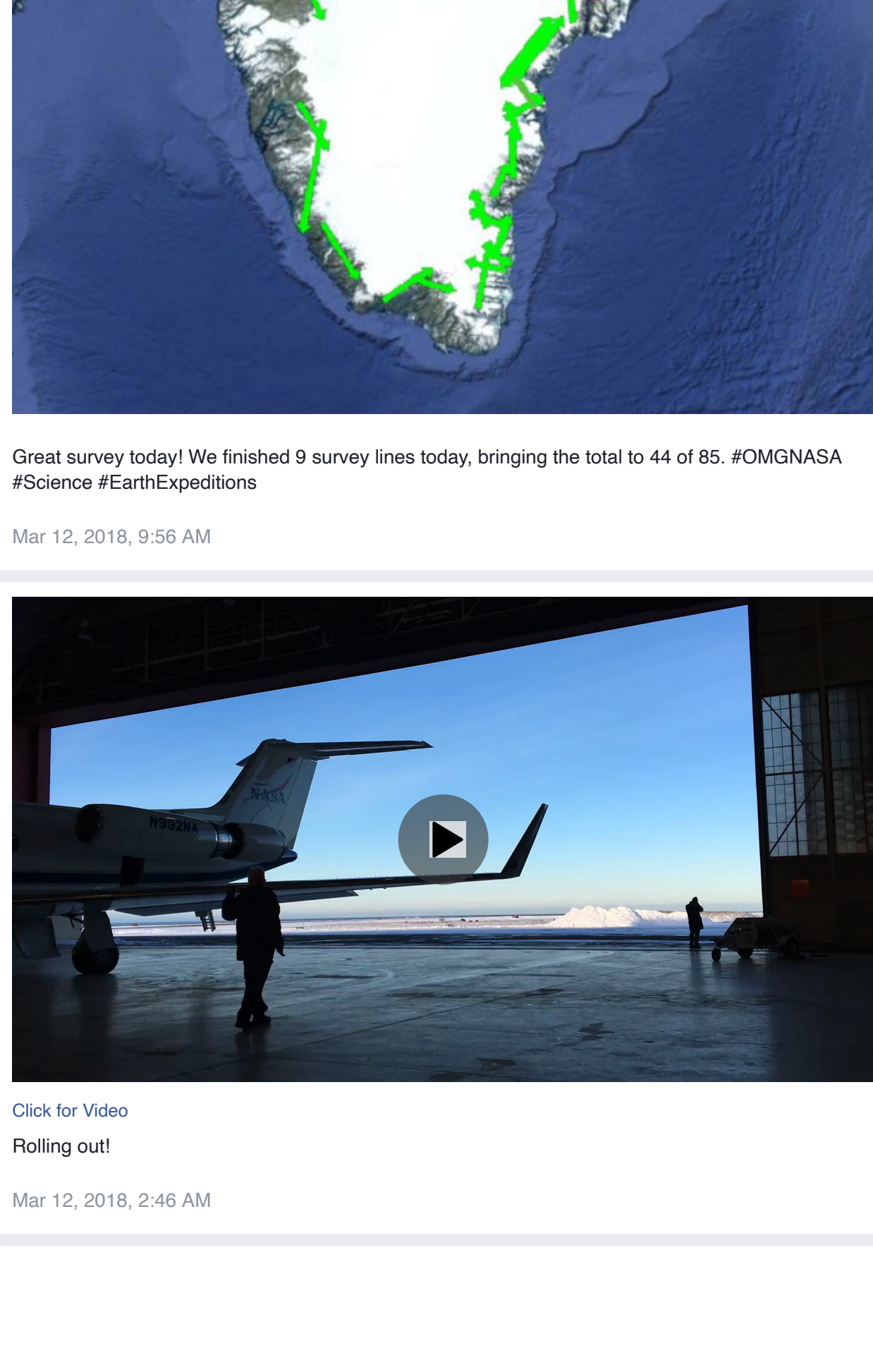
It was great catching up with the crew again this year. They are doing a great job and I look forward to seeing this data in a month or two when it is all processed. Stay tuned here for more updates on science and survey progress...

Mar 15, 2018, 3:51 AM



Another great survey day yesterday for OMG. We collected data along 6 lines in northeast Greenland. The glacier shown here over the wing was F. Graae in the northeast corner of Scoresby Sound (google it!). The crew was fantastic! Here they are: (left to right: me, Kurt Blankenship (pilot, JSC), David Elliot (flight engineer, JSC), Tom Parent (pilot, JSC), Angel Vazquez (Mechanic, JSC), Tim Miller (radar engineer, JPL), David Fuller (Mechanic, JSC), Ron Muellerschoen (radar engineer, JPL), Eric Ianison (NASA HQ), me.

Mar 14, 2018, 12:27 AM



Great survey today! We finished 9 survey lines today, bringing the total to 44 of 85. #OMGNASA #Science #EarthExpeditions

Mar 12, 2018, 9:56 AM



[Click for Video](#)

Rolling out!

Mar 12, 2018, 2:46 AM



Headed out in an hour or so to survey glaciers in southeast Greenland.

Mar 12, 2018, 2:46 AM



Well the crew has been busy so far! The green lines show where they have collected radar data so far this year and the light blue shows where we still plan to get data. Inside each one of these lines we are measuring the height of the glaciers very accurately so we can see how they are changing right at the edge.

Mar 11, 2018, 9:21 AM



Made it to Iceland! Will meet up with the crew to fly with them for the next few days. So far, they've made great progress on this year's glacier survey. More soon!

Mar 10, 2018, 11:43 PM

We're back! OMG headed into the field again today to do our yearly survey of the glaciers. I'll be meeting up with the crew in Iceland early next week. Stay tuned for photos, videos and other news this week and next!

Mar 6, 2018, 12:47 PM